

**Amendments to the Claims:**

This listing of claims will replace all prior versions and listings of claims in the application:

**Listing of claims:**

1. (Currently amended) A compound according to Formula (I) or a salt thereof:



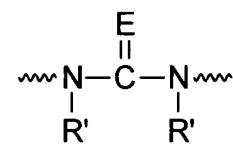
wherein

A comprises at least one substantially cell-membrane impermeable pendant group selected from natural, unnatural and synthetic amino acids, hydrophilic amines, peptides, polypeptides, thiol containing proteins and oligosaccharides, or a combination thereof;

X is selected from NR-, S(O)-, -S(O)O-, -S(O)<sub>2</sub>-, -S(O)<sub>2</sub>O-, -C(O)-, -C(S)-, -C(O)O-, C(S)O-, -C(S)S-, -P(O)(R<sub>1</sub>)-, -P(O)(R<sub>1</sub>)O-, or is absent;

B is selected from C<sub>1</sub>-C<sub>10</sub> alkylene, C<sub>2</sub>-C<sub>10</sub> alkenylene, C<sub>2</sub>-C<sub>10</sub> alkynylene, C<sub>3</sub>-C<sub>10</sub> cycloalkylene, C<sub>5</sub>-C<sub>10</sub> cycloalkenylene, C<sub>3</sub>-C<sub>10</sub> heterocycloalkylene, C<sub>5</sub>-C<sub>10</sub> heterocycloalkenylene, C<sub>6</sub>-C<sub>12</sub> arylene, heteroarylene or C<sub>2</sub>-C<sub>10</sub> acyl;

X' is selected from NR-, -O-, -S-, Se-, -SS-, S(O)-, -OS(O)-, OS(O)O-, -OS(O)<sub>2</sub>-, -OS(O)<sub>2</sub>O-, -S(O)O-, -S(O)<sub>2</sub>-, -S(O)<sub>2</sub>O-, -OP(O)(R<sub>1</sub>)-, -OP(O)(R<sub>1</sub>)O-, -OP(O)(R<sub>1</sub>)OP(O)(R<sub>1</sub>)O-, -C(O)-, -C(S)-, -C(O)O-, C(S)O-, -C(S)S-, -P(O)(R<sub>1</sub>)-, -P(O)(R<sub>1</sub>)O-,



or is absent; wherein E is O, S, Se, NR or N(R)<sub>2</sub><sup>+</sup>;

and

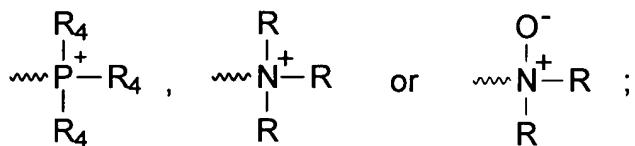
B' is selected from C<sub>1</sub>-C<sub>10</sub> alkylene, C<sub>2</sub>-C<sub>10</sub> alkenylene, C<sub>2</sub>-C<sub>10</sub> alkynylene, C<sub>3</sub>-C<sub>10</sub> cycloalkylene, C<sub>5</sub>-C<sub>10</sub> cycloalkenylene, C<sub>3</sub>-C<sub>10</sub> heterocycloalkylene, C<sub>5</sub>-C<sub>10</sub> heterocycloalkenylene, C<sub>6</sub>-C<sub>12</sub> arylene, and heteroarylene, or is absent;

wherein

each R is independently selected from hydrogen, C<sub>1</sub>-C<sub>10</sub> alkyl, C<sub>2</sub>-C<sub>10</sub> alkenyl, C<sub>2</sub>-C<sub>10</sub> alkynyl, C<sub>3</sub>-C<sub>10</sub> cycloalkyl, C<sub>5</sub>-C<sub>10</sub> cycloalkenyl, C<sub>3</sub>-C<sub>10</sub> heterocycloalkyl, C<sub>5</sub>-C<sub>10</sub> heterocycloalkenyl, C<sub>6</sub>-C<sub>12</sub> aryl, heteroaryl, OR<sub>2</sub> or C<sub>2</sub>-C<sub>10</sub> acyl;

R' is the same as R or two R' are taken together with the nitrogen atoms to which they are attached to form a 5 or 6-membered saturated or unsaturated heterocyclic ring; each R<sub>1</sub> is independently selected from hydrogen, C<sub>1</sub>-C<sub>10</sub> alkyl, C<sub>2</sub>-C<sub>10</sub> alkenyl, C<sub>2</sub>-C<sub>10</sub> alkynyl, C<sub>3</sub>-C<sub>10</sub> cycloalkyl, C<sub>5</sub>-C<sub>10</sub> cycloalkenyl, C<sub>3</sub>-C<sub>10</sub> heterocycloalkyl, C<sub>5</sub>-C<sub>10</sub> heterocycloalkenyl, C<sub>6</sub>-C<sub>12</sub> aryl, heteroaryl, halo, OR<sub>2</sub> or N(R)<sub>2</sub>; each R<sub>2</sub> is independently selected from hydrogen, C<sub>1</sub>-C<sub>10</sub> alkyl, C<sub>2</sub>-C<sub>10</sub> alkenyl, C<sub>2</sub>-C<sub>10</sub> alkynyl, C<sub>3</sub>-C<sub>10</sub> cycloalkyl, C<sub>5</sub>-C<sub>10</sub> cycloalkenyl, C<sub>3</sub>-C<sub>10</sub> heterocycloalkyl, C<sub>5</sub>-C<sub>10</sub> heterocycloalkenyl, C<sub>6</sub>-C<sub>12</sub> aryl, heteroaryl or -C(O)R<sub>5</sub>; each R<sub>5</sub> is independently selected from hydrogen, C<sub>1</sub>-C<sub>10</sub> alkyl, C<sub>2</sub>-C<sub>10</sub> alkenyl, C<sub>2</sub>-C<sub>10</sub> alkynyl, C<sub>3</sub>-C<sub>10</sub> cycloalkyl, C<sub>5</sub>-C<sub>10</sub> cycloalkenyl, C<sub>3</sub>-C<sub>10</sub> heterocycloalkyl, C<sub>5</sub>-C<sub>10</sub> heterocycloalkenyl, C<sub>6</sub>-C<sub>12</sub> aryl, heteroaryl, C<sub>1</sub>-C<sub>10</sub> alkoxy, C<sub>3</sub>-C<sub>10</sub> alkenyloxy, C<sub>3</sub>-C<sub>10</sub> alkynyoxy, C<sub>3</sub>-C<sub>10</sub> cycloalkyloxy, C<sub>5</sub>-C<sub>10</sub> cycloalkenyloxy, C<sub>3</sub>-C<sub>10</sub> heterocycloalkyloxy, C<sub>5</sub>-C<sub>10</sub> heterocycloalkenyloxy, C<sub>6</sub>-C<sub>12</sub> aryloxy, heteroaryloxy, C<sub>1</sub>-C<sub>10</sub> alkylthio, C<sub>3</sub>-C<sub>10</sub> alkenylthio, C<sub>3</sub>-C<sub>10</sub> alkynylthio, C<sub>3</sub>-C<sub>10</sub> cycloalkylthio, C<sub>5</sub>-C<sub>10</sub> cycloalkenylthio, C<sub>3</sub>-C<sub>10</sub> heterocycloalkylthio, C<sub>5</sub>-C<sub>10</sub> heterocycloalkenylthio, C<sub>6</sub>-C<sub>12</sub> arylthio, heteroarylthio, OH, SH or N(R)<sub>2</sub>;

wherein for each instance that B and/or B' is arylene, the substituents directly attached to the respective arylene rings are in a para, meta or ortho relationship, and wherein each alkylene, alkenylene, alkynylene, cycloalkylene, cycloalkenylene, heterocycloalkylene, heterocycloalkenylene, arylene, heteroarylene and acyl are optionally independently substituted with hydrogen, C<sub>1</sub>-C<sub>10</sub> alkyl, C<sub>2</sub>-C<sub>10</sub> alkenyl, C<sub>2</sub>-C<sub>10</sub> alkynyl, C<sub>3</sub>-C<sub>10</sub> cycloalkyl, C<sub>5</sub>-C<sub>10</sub> cycloalkenyl, C<sub>3</sub>-C<sub>10</sub> heterocycloalkyl, C<sub>5</sub>-C<sub>10</sub> heterocycloalkenyl, C<sub>6</sub>-C<sub>12</sub> aryl, heteroaryl, halo, cyano, cyanate, isocyanate, OR<sub>2a</sub>, SR<sub>6</sub>, nitro, arsenoxide, -S(O)R<sub>3</sub>, -OS(O)R<sub>3</sub>, -S(O)<sub>2</sub>R<sub>3</sub>, -OS(O)<sub>2</sub>R<sub>3</sub>, -P(O)R<sub>4</sub>R<sub>4</sub>, -OP(O)R<sub>4</sub>R<sub>4</sub>, -N(R'')<sub>2</sub>, -NRC(O)(CH<sub>2</sub>)<sub>m</sub>Q, -C(O)R<sub>5</sub>.



wherein R, R<sub>1</sub> and R<sub>5</sub> are as defined above; and

R<sub>2a</sub> is selected from hydrogen, C<sub>1</sub>-C<sub>5</sub> alkyl, C<sub>2</sub>-C<sub>5</sub> alkenyl, C<sub>2</sub>-C<sub>5</sub> alkynyl, C<sub>3</sub>-C<sub>10</sub> cycloalkyl, C<sub>5</sub>-C<sub>10</sub> cycloalkenyl, C<sub>6</sub>-C<sub>12</sub> aryl, -S(O)R<sub>3</sub>, -S(O)<sub>2</sub>R<sub>3</sub>, -P(O)(R<sub>4</sub>)<sub>2</sub>, N(R)<sub>2</sub> or -C(O)R<sub>5</sub>;

each R<sub>3</sub> is independently selected from hydrogen, C<sub>1</sub>-C<sub>10</sub> alkyl, C<sub>2</sub>-C<sub>10</sub> alkenyl, C<sub>2</sub>-C<sub>10</sub> alkynyl, C<sub>3</sub>-C<sub>10</sub> cycloalkyl, C<sub>5</sub>-C<sub>10</sub> cycloalkenyl, C<sub>3</sub>-C<sub>10</sub> heterocycloalkyl, C<sub>5</sub>-C<sub>10</sub> heterocycloalkenyl, C<sub>6</sub>-C<sub>12</sub> aryl, heteroaryl, C<sub>1</sub>-C<sub>10</sub> alkoxy, C<sub>3</sub>-C<sub>10</sub> alkenyloxy, C<sub>3</sub>-C<sub>10</sub> alkynyoxy, C<sub>3</sub>-C<sub>10</sub> cycloalkyloxy, C<sub>5</sub>-C<sub>10</sub> cycloalkenyloxy, C<sub>3</sub>-C<sub>10</sub> heterocycloalkyloxy, C<sub>5</sub>-C<sub>10</sub> heterocycloalkenyloxy, C<sub>6</sub>-C<sub>12</sub> aryloxy, heteroaryloxy, C<sub>1</sub>-C<sub>10</sub> alkylthio, C<sub>3</sub>-C<sub>10</sub> alkenylthio, C<sub>3</sub>-C<sub>10</sub> alkynylthio, C<sub>3</sub>-C<sub>10</sub> cycloalkylthio, C<sub>5</sub>-C<sub>10</sub> cycloalkenylthio, C<sub>3</sub>-C<sub>10</sub> heterocycloalkylthio, C<sub>5</sub>-C<sub>10</sub> heterocycloalkenylthio, C<sub>6</sub>-C<sub>12</sub> arylthio, heteroarylthio or N(R)<sub>2</sub>;

each R<sub>4</sub> is independently selected from hydrogen, C<sub>1</sub>-C<sub>10</sub> alkyl, C<sub>2</sub>-C<sub>10</sub> alkenyl, C<sub>2</sub>-C<sub>10</sub> alkynyl, C<sub>3</sub>-C<sub>10</sub> cycloalkyl, C<sub>5</sub>-C<sub>10</sub> cycloalkenyl, C<sub>3</sub>-C<sub>10</sub> heterocycloalkyl, C<sub>5</sub>-C<sub>10</sub> heterocycloalkenyl, C<sub>6</sub>-C<sub>12</sub> aryl, heteroaryl, C<sub>1</sub>-C<sub>10</sub> alkoxy, C<sub>3</sub>-C<sub>10</sub> alkenyloxy, C<sub>3</sub>-C<sub>10</sub> alkynyoxy, C<sub>3</sub>-C<sub>10</sub> cycloalkyloxy, C<sub>5</sub>-C<sub>10</sub> cycloalkenyloxy, C<sub>3</sub>-C<sub>10</sub> heterocycloalkyloxy, C<sub>5</sub>-C<sub>10</sub> heterocycloalkenyloxy, C<sub>6</sub>-C<sub>12</sub> aryloxy, heteroaryloxy, C<sub>1</sub>-C<sub>10</sub> alkylthio, C<sub>3</sub>-C<sub>10</sub> alkenylthio, C<sub>3</sub>-C<sub>10</sub> alkynylthio, C<sub>3</sub>-C<sub>10</sub> cycloalkylthio, C<sub>5</sub>-C<sub>10</sub> cycloalkenylthio, C<sub>3</sub>-C<sub>10</sub> heterocycloalkylthio, C<sub>5</sub>-C<sub>10</sub> heterocycloalkenylthio, C<sub>6</sub>-C<sub>12</sub> arylthio, heteroarylthio, halo or N(R)<sub>2</sub>;

R<sub>5</sub> is selected from C<sub>1</sub>-C<sub>10</sub> alkyl, C<sub>2</sub>-C<sub>10</sub> alkenyl, C<sub>2</sub>-C<sub>10</sub> alkynyl, C<sub>3</sub>-C<sub>10</sub> cycloalkyl, C<sub>5</sub>-C<sub>10</sub> cycloalkenyl, C<sub>3</sub>-C<sub>10</sub> heterocycloalkyl, C<sub>5</sub>-C<sub>10</sub> heterocycloalkenyl, C<sub>6</sub>-C<sub>12</sub> aryl, heteroaryl, C<sub>1</sub>-C<sub>10</sub> alkylthio, C<sub>3</sub>-C<sub>10</sub> alkenylthio, C<sub>3</sub>-C<sub>10</sub> alkynylthio, C<sub>3</sub>-C<sub>10</sub> cycloalkylthio, C<sub>5</sub>-C<sub>10</sub> cycloalkenylthio, C<sub>3</sub>-C<sub>10</sub> heterocycloalkylthio, C<sub>5</sub>-C<sub>10</sub> heterocycloalkenylthio, C<sub>6</sub>-C<sub>12</sub> arylthio, heteroarylthio, -S(O)R<sub>3</sub>, -S(O)<sub>2</sub>R<sub>3</sub> or -C(O)R<sub>5</sub>.

R" is the same as R or two R" taken together with the N atom to which they are attached may form a saturated, unsaturated or aromatic heterocyclic ring system;

Q is selected from halogen and -OS(O)<sub>2</sub>Q<sub>1</sub>; wherein Q<sub>1</sub> is selected from C<sub>1</sub>-C<sub>4</sub> alkyl, C<sub>1</sub>-C<sub>4</sub> perfluoroalkyl, phenyl, p-methylphenyl;

m is an integer selected from 1 to 5,

Y comprises at least one arsenoxide group or arsenoxide equivalent;

p is an integer selected from 1 to 10;

n is an integer selected from 0 to 20, and

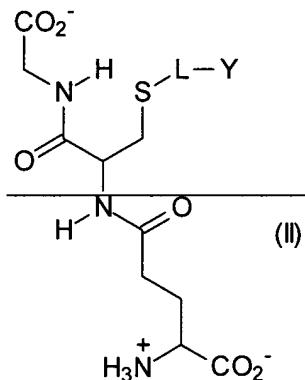
wherein the sum total of carbon atoms in A and  $(XBX')_nB'$   $[[L]]$  together, is greater than 6; and with the proviso that:

when Y is arsenoxide, X is C=O or NR where R is hydrogen, B is C<sub>6</sub>-arylene optionally substituted with amine, X' is absent, n is 1, and B' is absent, then A is not a hydrophilic amine.

2-8. (Canceled)

9. (Currently amended) The compound according to claim 1, wherein A is selected from the group consisting of glutathione, glucosamine, cysteinylglycine, cysteic acid, aspartic acid, glutamic acid, lysine, and arginine, and wherein the sulfur atom of each sulfur containing compound ~~are~~ ~~may~~ be optionally oxidised to form a sulfoxide or sulfone.

10. (Currently amended) The compound according to claim 1, wherein A is glutathione, and ~~wherein the compound is represented by Formula II:~~



~~wherein L comprises any suitable linker and/or spacer group, and Y comprises an arsenoxide or an arsenoxide equivalent.~~

11. (Previously presented) The compound according to claim 1, wherein p is an integer from 1 to 5.

12. (Previously presented) The compound according to claim 1, wherein p is 1.

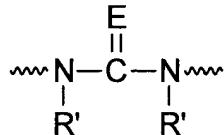
13. (Canceled)

14. (Currently amended) The compound according to claim 1 ~~13~~, wherein

X is selected from NR-, -C(O)-, -C(S)-, -C(O)O-, -C(S)O-, -C(S)S-, or is absent;

B is selected from C<sub>1</sub>-C<sub>5</sub> alkylene, C<sub>2</sub>-C<sub>5</sub> alkenylene, C<sub>2</sub>-C<sub>5</sub> alkynylene, C<sub>3</sub>-C<sub>10</sub> cycloalkylene, C<sub>5</sub>-C<sub>10</sub> cycloalkenylene, C<sub>6</sub>-C<sub>12</sub> arylene or C<sub>2</sub>-C<sub>5</sub> acyl;

X' is selected from -O-, -S-, -NR-, -S-S-, -S(O)-, -S(O)<sub>2</sub>-, -P(O)(R<sub>1</sub>)-, -OP(O)(R<sub>1</sub>)-, OP(O)(R<sub>1</sub>)O-, -OP(O)(R<sub>1</sub>)OP(O)(R<sub>1</sub>)O-, -C(O)-, -C(S)-, -C(O)O-, -C(S)O-, -C(S)S-, -Se-,



or is absent; wherein E is O, S or N(R)<sub>2</sub><sup>+</sup>;

n is 0, 1 or 2; and

B' is C<sub>1</sub>-C<sub>5</sub> alkylene, C<sub>2</sub>-C<sub>5</sub> alkenylene, C<sub>2</sub>-C<sub>5</sub> alkynylene, C<sub>3</sub>-C<sub>10</sub> cycloalkylene, C<sub>5</sub>-C<sub>10</sub> cycloalkenylene, C<sub>6</sub>-C<sub>12</sub> arylene or is absent; and wherein

each R is independently selected from hydrogen, C<sub>1</sub>-C<sub>5</sub> alkyl, C<sub>2</sub>-C<sub>5</sub> alkenyl, C<sub>2</sub>-C<sub>5</sub> alkynyl, C<sub>3</sub>-C<sub>10</sub> cycloalkyl, C<sub>5</sub>-C<sub>10</sub> cycloalkenyl, C<sub>6</sub>-C<sub>12</sub> aryl, OR<sub>2</sub> or C<sub>2</sub>-C<sub>10</sub> acyl;

R' is the same as R;

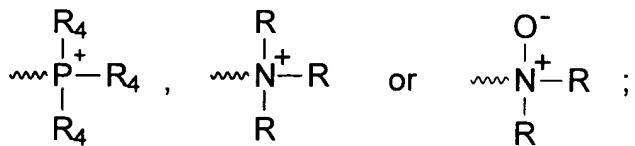
each R<sub>1</sub> is independently selected from hydrogen, C<sub>1</sub>-C<sub>5</sub> alkyl, C<sub>2</sub>-C<sub>5</sub> alkenyl, C<sub>2</sub>-C<sub>5</sub> alkynyl, C<sub>3</sub>-C<sub>10</sub> cycloalkyl, C<sub>5</sub>-C<sub>10</sub> cycloalkenyl, C<sub>6</sub>-C<sub>12</sub> aryl, halo, OR<sub>2</sub> or N(R)<sub>2</sub>;

each R<sub>2</sub> is independently selected from hydrogen, C<sub>1</sub>-C<sub>5</sub> alkyl, C<sub>2</sub>-C<sub>5</sub> alkenyl, C<sub>2</sub>-C<sub>5</sub> alkynyl, C<sub>3</sub>-C<sub>10</sub> cycloalkyl, C<sub>5</sub>-C<sub>10</sub> cycloalkenyl, C<sub>6</sub>-C<sub>12</sub> aryl or -C(O)R<sub>5</sub>;

each R<sub>5</sub> is independently selected from hydrogen, C<sub>1</sub>-C<sub>5</sub> alkyl, C<sub>2</sub>-C<sub>5</sub> alkenyl, C<sub>2</sub>-C<sub>5</sub> alkynyl, C<sub>3</sub>-C<sub>10</sub> cycloalkyl, C<sub>5</sub>-C<sub>10</sub> cycloalkenyl, C<sub>6</sub>-C<sub>12</sub> aryl, C<sub>1</sub>-C<sub>5</sub> alkoxy, C<sub>3</sub>-C<sub>5</sub> alkenyloxy, C<sub>3</sub>-C<sub>5</sub> alkynyoxy, C<sub>3</sub>-C<sub>10</sub> cycloalkyloxy, C<sub>5</sub>-C<sub>10</sub> cycloalkenyloxy, C<sub>6</sub>-C<sub>12</sub> aryloxy, C<sub>1</sub>-C<sub>5</sub> alkylthio, C<sub>3</sub>-C<sub>5</sub> alkenylthio, C<sub>3</sub>-C<sub>5</sub> alkynylthio, C<sub>3</sub>-C<sub>10</sub> cycloalkylthio, C<sub>5</sub>-C<sub>10</sub> cycloalkenylthio, C<sub>6</sub>-C<sub>12</sub> arylthio, OH, SH or N(R)<sub>2</sub>;

wherein each instance of arylene may have substituents A and X or X and Y in a para, meta or ortho relationship, and

wherein each alkylene, alkenylene, alkynylene, cycloalkylene, cycloalkenylene, arylene, and acyl are optionally may be independently substituted with hydrogen, C<sub>1</sub>-C<sub>5</sub> alkyl, C<sub>2</sub>-C<sub>5</sub> alkenyl, C<sub>2</sub>-C<sub>5</sub> alkynyl, C<sub>3</sub>-C<sub>10</sub> cycloalkyl, C<sub>5</sub>-C<sub>10</sub> cycloalkenyl, C<sub>6</sub>-C<sub>12</sub> aryl, halo, cyanate, isocyanate, OR<sub>2a</sub>, SR<sub>6</sub>, nitro, arsenoxide, -S(O)R<sub>3</sub>, -OS(O)R<sub>3</sub>, -S(O)<sub>2</sub>R<sub>3</sub>, -OS(O)<sub>2</sub>R<sub>3</sub>, -P(O)R<sub>4</sub>R<sub>4</sub>, -OP(O)R<sub>4</sub>R<sub>4</sub>, -N(R'')<sub>2</sub>, NRC(O)(CH<sub>2</sub>)<sub>m</sub>Q, -C(O)R<sub>5</sub>,



wherein R, R<sub>1</sub> and R<sub>5</sub> are as defined above; and

R<sub>2a</sub> selected from hydrogen, C<sub>1</sub>-C<sub>5</sub> alkyl, C<sub>2</sub>-C<sub>5</sub> alkenyl, C<sub>2</sub>-C<sub>5</sub> alkynyl, C<sub>3</sub>-C<sub>10</sub> cycloalkyl, C<sub>5</sub>-C<sub>10</sub> cycloalkenyl, C<sub>6</sub>-C<sub>12</sub> aryl, -S(O)R<sub>3</sub>, -S(O)<sub>2</sub>R<sub>3</sub>, -P(O)(R<sub>4</sub>)<sub>2</sub>, N(R)<sub>2</sub> or -C(O)R<sub>5</sub>;

each R<sub>3</sub> is independently selected from hydrogen, C<sub>1</sub>-C<sub>5</sub> alkyl, C<sub>2</sub>-C<sub>5</sub> alkenyl, C<sub>2</sub>-C<sub>5</sub> alkynyl, C<sub>3</sub>-C<sub>10</sub> cycloalkyl, C<sub>5</sub>-C<sub>10</sub> cycloalkenyl, C<sub>6</sub>-C<sub>12</sub> aryl, C<sub>1</sub>-C<sub>5</sub> alkoxy, C<sub>3</sub>-C<sub>5</sub> alkenyloxy, C<sub>3</sub>-C<sub>5</sub> alkynyloxy, C<sub>3</sub>-C<sub>10</sub> cycloalkyloxy, C<sub>5</sub>-C<sub>10</sub> cycloalkenyloxy, C<sub>6</sub>-C<sub>12</sub> aryloxy, C<sub>1</sub>-C<sub>5</sub> alkylthio, C<sub>3</sub>-C<sub>5</sub> alkenylthio, C<sub>3</sub>-C<sub>5</sub> alkynylthio, C<sub>3</sub>-C<sub>10</sub> cycloalkylthio, C<sub>5</sub>-C<sub>10</sub> cycloalkenylthio, C<sub>6</sub>-C<sub>12</sub> arylthio or N(R)<sub>2</sub>;

each R<sub>4</sub> is independently selected from hydrogen, C<sub>1</sub>-C<sub>5</sub> alkyl, C<sub>2</sub>-C<sub>5</sub> alkenyl, C<sub>2</sub>-C<sub>5</sub> alkynyl, C<sub>3</sub>-C<sub>10</sub> cycloalkyl, C<sub>5</sub>-C<sub>10</sub> cycloalkenyl, C<sub>6</sub>-C<sub>12</sub> aryl, C<sub>1</sub>-C<sub>5</sub> alkoxy, C<sub>3</sub>-C<sub>5</sub> alkenyloxy, C<sub>3</sub>-C<sub>5</sub> alkynyloxy, C<sub>3</sub>-C<sub>10</sub> cycloalkyloxy, C<sub>5</sub>-C<sub>10</sub> cycloalkenyloxy, C<sub>6</sub>-C<sub>12</sub> aryloxy, C<sub>1</sub>-C<sub>5</sub> alkylthio, C<sub>3</sub>-C<sub>5</sub> alkenylthio, C<sub>3</sub>-C<sub>5</sub> alkynylthio, C<sub>3</sub>-C<sub>5</sub> cycloalkylthio, C<sub>5</sub>-C<sub>5</sub> cycloalkenylthio, C<sub>6</sub>-C<sub>12</sub> arylthio, halo or N(R)<sub>2</sub>;

R<sub>6</sub> is independently selected from C<sub>1</sub>-C<sub>5</sub> alkyl, C<sub>2</sub>-C<sub>5</sub> alkenyl, C<sub>2</sub>-C<sub>5</sub> alkynyl, C<sub>3</sub>-C<sub>10</sub> cycloalkyl, C<sub>5</sub>-C<sub>10</sub> cycloalkenyl, C<sub>6</sub>-C<sub>12</sub> aryl, C<sub>1</sub>-C<sub>5</sub> alkylthio, C<sub>3</sub>-C<sub>5</sub> alkenylthio, C<sub>3</sub>-C<sub>5</sub> alkynylthio, C<sub>3</sub>-C<sub>10</sub> cycloalkylthio, C<sub>5</sub>-C<sub>10</sub> cycloalkenylthio, C<sub>6</sub>-C<sub>12</sub> arylthio, -S(O)R<sub>3</sub>, -S(O)<sub>2</sub>R<sub>3</sub> or -C(O)R<sub>5</sub>,

R" is the same as R;

Q is selected from halogen and -OS(O)<sub>2</sub>Q<sub>1</sub>; wherein Q<sub>1</sub> is selected from C<sub>1</sub>-C<sub>4</sub> alkyl, C<sub>1</sub>-C<sub>4</sub> perfluoroalkyl, phenyl, p-methylphenyl; and

m is an integer from 1 to 5, and

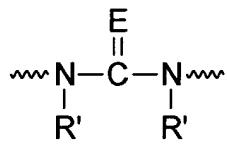
wherein the sum total of carbon atoms in A and (XBX')<sub>n</sub>B' together, is greater than 6.

15. (Currently amended) A compound according to claim 1-13, wherein

X is absent;

B is selected from C<sub>1</sub>-C<sub>5</sub> alkylene, C<sub>6</sub>-C<sub>12</sub> arylene or C<sub>2</sub>-C<sub>5</sub> acyl;

X' is selected from -O-, -S-, -NR-, -S-S-, -S(O)-, -S(O)<sub>2</sub>-, -P(O)(R<sub>1</sub>)-, -C(O)-, -C(S)-, -C(O)O-, -C(S)O-, -Se-,



or absent; wherein E is O, S or  $\text{N}(\text{R})_2^+$ ;

n is 0, 1 or 2; and

B' is  $\text{C}_1\text{-C}_5$  alkylene,  $\text{C}_6\text{-C}_{12}$  arylene or is absent; and wherein

each R is independently selected from hydrogen,  $\text{C}_1\text{-C}_5$  alkyl,  $\text{C}_3\text{-C}_{10}$  cycloalkyl,  $\text{C}_6\text{-C}_{12}$  aryl,  $\text{OR}_2$  or  $\text{C}_2\text{-C}_5$  acyl;

R' is the same as R;

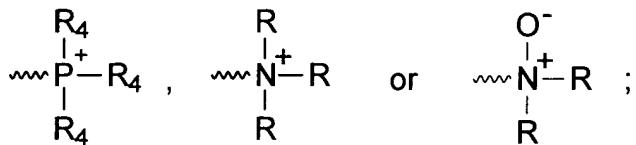
each  $\text{R}_1$  is independently selected from hydrogen,  $\text{C}_1\text{-C}_5$  alkyl,  $\text{C}_3\text{-C}_{10}$  cycloalkyl,  $\text{C}_6\text{-C}_{12}$  aryl, halo,  $\text{OR}_2$  or  $\text{N}(\text{R})_2$ ;

each  $\text{R}_2$  is independently selected from hydrogen,  $\text{C}_1\text{-C}_5$  alkyl,  $\text{C}_3\text{-C}_{10}$  cycloalkyl,  $\text{C}_6\text{-C}_{12}$  aryl or  $-\text{C}(\text{O})\text{R}_5$ ;

each  $\text{R}_5$  is independently selected from hydrogen,  $\text{C}_1\text{-C}_5$  alkyl,  $\text{C}_2\text{-C}_5$  alkenyl,  $\text{C}_3\text{-C}_{10}$  cycloalkyl,  $\text{C}_5\text{-C}_{10}$  cycloalkenyl,  $\text{C}_6\text{-C}_{12}$  aryl,  $\text{C}_1\text{-C}_5$  alkoxy,  $\text{C}_3\text{-C}_5$  alkenyloxy,  $\text{C}_3\text{-C}_{10}$  cycloalkyloxy,  $\text{C}_5\text{-C}_{10}$  cycloalkenyloxy,  $\text{C}_6\text{-C}_{12}$  aryloxy,  $\text{C}_1\text{-C}_5$  alkylthio,  $\text{C}_3\text{-C}_5$  alkenylthio,  $\text{C}_3\text{-C}_{10}$  cycloalkylthio,  $\text{C}_5\text{-C}_{10}$  cycloalkenylthio,  $\text{C}_6\text{-C}_{12}$  arylthio, OH, SH or  $\text{N}(\text{R})_2$ ;

wherein for each instance that B and/or B' is arylene, the substituents directly attached to the respective arylene rings (~~including arsenoxide or arsenoxide equivalent~~), may be are in a para, meta or ortho relationship, and

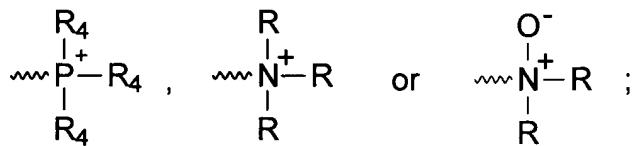
wherein each alkylene, alkenylene, alkynylene, cycloalkylene, cycloalkenylene, arylene, and acyl may be are optionally independently substituted with hydrogen,  $\text{C}_1\text{-C}_5$  alkyl,  $\text{C}_2\text{-C}_5$  alkenyl,  $\text{C}_2\text{-C}_5$  alkynyl,  $\text{C}_3\text{-C}_{10}$  cycloalkyl,  $\text{C}_5\text{-C}_{10}$  cycloalkenyl,  $\text{C}_6\text{-C}_{12}$  aryl, halo, cyano, cyanate, isocyanate,  $\text{OR}_{2a}$ ,  $\text{SR}_6$ , nitro, arsenoxide,  $-\text{S}(\text{O})\text{R}_3$ ,  $-\text{OS}(\text{O})\text{R}_3$ ,  $-\text{S}(\text{O})_2\text{R}_3$ ,  $-\text{OS}(\text{O})_2\text{R}_3$ ,  $-\text{P}(\text{O})\text{R}_4\text{R}_4$ ,  $-\text{OP}(\text{O})\text{R}_4\text{R}_4$ ,  $-\text{N}(\text{R}'')_2$ ,  $-\text{NRC}(\text{O})(\text{CH}_2)_m\text{Q}$ ,  $-\text{C}(\text{O})\text{R}_5$ ,



wherein R,  $\text{R}_1$  and  $\text{R}_5$  are as defined above; and

$R_{2a}$  is selected from hydrogen,  $C_1$ - $C_5$  alkyl,  $C_3$ - $C_{10}$  cycloalkyl,  $C_6$ - $C_{12}$  aryl,  $-S(O)R_3$ ,  $-S(O)_2R_3$ ,  $-P(O)(R_4)_2$  and  $-C(O)R_5$ ;  
each  $R_3$  is independently selected from hydrogen,  $C_1$ - $C_5$  alkyl,  $C_3$ - $C_{10}$  cycloalkyl,  $C_6$ - $C_{12}$  aryl,  $C_1$ - $C_5$  alkoxy,  $C_3$ - $C_{10}$  cycloalkyloxy,  $C_6$ - $C_{12}$  aryloxy,  $C_1$ - $C_5$  alkylthio,  $C_3$ - $C_{10}$  cycloalkylthio,  $C_6$ - $C_{12}$  arylthio or  $N(R)_2$ ;  
each  $R_4$  is independently selected from hydrogen,  $C_1$ - $C_5$  alkyl,  $C_3$ - $C_{10}$  cycloalkyl,  $C_6$ - $C_{12}$  aryl,  $C_1$ - $C_5$  alkoxy,  $C_3$ - $C_{10}$  cycloalkyloxy,  $C_6$ - $C_{12}$  aryloxy, halo or  $N(R)_2$ ;  
 $R_6$  is selected from  $C_1$ - $C_5$  alkyl,  $C_3$ - $C_{10}$  cycloalkyl,  $C_6$ - $C_{12}$  aryl,  $C_1$ - $C_5$  alkylthio,  $C_3$ - $C_{10}$  cycloalkylthio,  $C_6$ - $C_{12}$  arylthio,  $-S(O)R_3$ ,  $-S(O)_2R_3$  or  $-C(O)R_5$ ,  
 $R''$  is the same as  $R$ ;  
 $Q$  is selected from halogen and  $-OS(O)_2Q_1$ ; wherein  $Q_1$  is selected from  $C_1$ - $C_4$  alkyl,  $C_1$ - $C_4$  perfluoroalkyl, phenyl, *p*-methylphenyl; and  
 $m$  is 1 to 5.

16. (Currently amended) A compound according to claim 1 13, wherein  
 $X$  is absent;  
 $B$  is selected from  $C_1$ - $C_5$  alkylene,  $C_6$ - $C_{12}$  arylene or  $C_2$ - $C_5$  acyl;  
 $X'$  is selected from  $-O-$ ,  $-S-$ ,  $-NR-$ ,  $-C(O)-$ ,  $-C(O)O-$ , or is absent;  
 $n$  is 1; and  
 $B'$  is  $C_1$ - $C_5$  alkylene,  $C_6$ - $C_{12}$  arylene or is absent; and  
 $R$  is selected from hydrogen,  $C_1$ - $C_5$  alkyl,  $C_6$ - $C_{12}$  aryl or  $C_2$ - $C_5$  acyl;  
wherein for each instance that  $B$  and/or  $B'$  is arylene, the substituents directly attached to the respective arylene rings (including arsenoxide or arsenoxide equivalent), may be are in a para, meta or ortho relationship, and  
wherein each alkylene, arylene, and acyl may be are optionally independently substituted with hydrogen,  $C_1$ - $C_5$  alkyl,  $C_2$ - $C_5$  alkenyl,  $C_2$ - $C_5$  alkynyl,  $C_3$ - $C_{10}$  cycloalkyl,  $C_5$ - $C_{10}$  cycloalkenyl,  $C_6$ - $C_{12}$  aryl, halo, cyano, cyanate, isocyanate,  $OR_{2a}$ ,  $SR_6$ , nitro, arsenoxide,  $-S(O)R_3$ ,  $-S(O)_2R_3$ ,  $-P(O)R_4R_4$ ,  $-N(R'')_2$ ,  $-NRC(O)(CH_2)_mQ$ ,  $-C(O)R_5$ ,



wherein each R is independently selected from hydrogen, C<sub>1</sub>-C<sub>5</sub> alkyl, C<sub>6</sub>-C<sub>12</sub> aryl or C<sub>2</sub>-C<sub>5</sub> acyl;

R<sub>2a</sub> is selected from hydrogen, C<sub>1</sub>-C<sub>5</sub> alkyl, C<sub>6</sub>-C<sub>12</sub> aryl, -S(O)R<sub>3</sub>, -S(O)<sub>2</sub>R<sub>3</sub>, -P(O)(R<sub>4</sub>)<sub>2</sub> or -C(O)R<sub>5</sub>; each R<sub>3</sub> is independently selected from hydrogen, C<sub>1</sub>-C<sub>5</sub> alkyl, C<sub>6</sub>-C<sub>12</sub> aryl, C<sub>1</sub>-C<sub>5</sub> alkoxy, C<sub>6</sub>-C<sub>12</sub> aryloxy, C<sub>1</sub>-C<sub>5</sub> alkylthio, or C<sub>6</sub>-C<sub>12</sub> arylthio;

each R<sub>4</sub> is independently selected from hydrogen, C<sub>1</sub>-C<sub>5</sub> alkyl, C<sub>6</sub>-C<sub>12</sub> aryl, C<sub>1</sub>-C<sub>5</sub> alkoxy, C<sub>6</sub>-C<sub>12</sub> aryloxy, C<sub>1</sub>-C<sub>5</sub> alkylthio, C<sub>6</sub>-C<sub>12</sub> arylthio, halo or N(R)<sub>2</sub>;

each R<sub>5</sub> is independently selected from hydrogen, C<sub>1</sub>-C<sub>5</sub> alkyl, C<sub>6</sub>-C<sub>12</sub> aryl, C<sub>1</sub>-C<sub>5</sub> alkoxy, C<sub>6</sub>-C<sub>12</sub> aryloxy, C<sub>1</sub>-C<sub>5</sub> alkylthio, C<sub>6</sub>-C<sub>12</sub> arylthio, OH, SH or N(R)<sub>2</sub>;

R<sub>6</sub> is selected from C<sub>1</sub>-C<sub>5</sub> alkyl, C<sub>6</sub>-C<sub>12</sub> aryl, C<sub>1</sub>-C<sub>5</sub> alkylthio, C<sub>6</sub>-C<sub>12</sub> arylthio, -S(O)R<sub>3</sub>, -S(O)<sub>2</sub>R<sub>3</sub> or -C(O)R<sub>5</sub>,

R" is the same as R above;

Q is selected from halogen and -OS(O)<sub>2</sub>Q<sub>1</sub>; wherein Q<sub>1</sub> is selected from C<sub>1</sub>-C<sub>4</sub> alkyl, C<sub>1</sub>-C<sub>4</sub> perfluoroalkyl, phenyl, p-methylphenyl; and

m is 1 to 5.

17. (Currently amended) A compound according to claim 1-13, wherein

X is absent;

B is C<sub>2</sub>-C<sub>5</sub> acyl;

X' is NR;

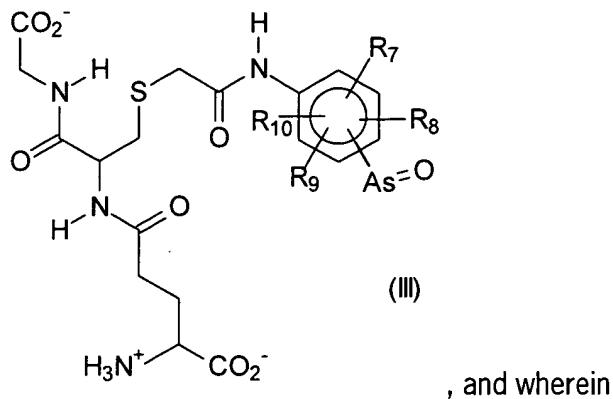
n is 1;

B' is phenylene; and

R is H;

wherein for each instance that B and/or B' is arylene, the substituents directly attached to the phenylene ring respective arylene rings (including arsenoxide or arsenoxide equivalent), may be are in a para-, meta- or ortho- relationship. [[,]]

18. (Previously presented) The compound according to claim 1 represented by Formula III:



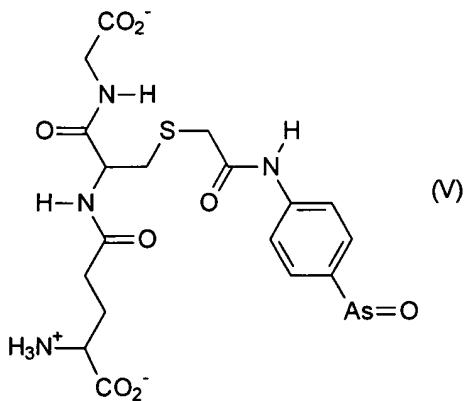
, and wherein

R<sub>7</sub> to R<sub>10</sub> are independently selected from the group consisting of: hydrogen, C<sub>1</sub>-C<sub>5</sub> alkyl, C<sub>6</sub>-C<sub>12</sub> aryl, halogen, hydroxy, amino, nitro, carboxy, C<sub>1</sub>-C<sub>5</sub> alkoxy, -OS(O)<sub>2</sub>R<sub>3</sub> or -NHC(O)CH<sub>2</sub>Q wherein Q is halogen, -OS(O)<sub>2</sub>CH<sub>3</sub>, -OS(O)<sub>2</sub>C<sub>6</sub>H<sub>5</sub> or -OS(O)<sub>2</sub>-p-tolyl.

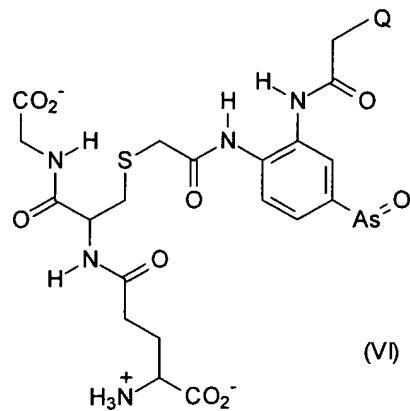
19. (Previously presented) The compound according to claim 18, wherein R<sub>7</sub> to R<sub>10</sub> are independently selected from hydrogen, halogen, hydroxy, amino, nitro, carboxy, C<sub>1</sub>-C<sub>5</sub> alkoxy, methyl, ethyl, iso-propyl, tert-butyl, phenyl, and -NHC(O)CH<sub>2</sub>Q wherein Q is halogen, -OS(O)<sub>2</sub>CH<sub>3</sub>, -OS(O)<sub>2</sub>C<sub>6</sub>H<sub>5</sub>, or -OS(O)<sub>2</sub>-p-tolyl.

20. (Previously presented) The compound according to claim 18, wherein the arsenoxide (-As=O) group is at the 4-position of the phenylene ring.

21. (Previously presented) The compound according to claim 1, wherein the compound is 4-(N-(S-glutathionylacetyl)amino)phenylarsenoxide (GSAO) and is represented by Formula V:

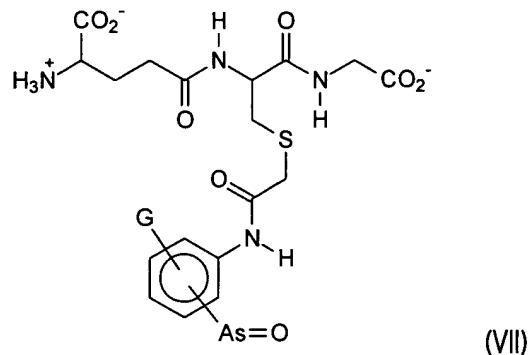


22. (Previously presented) The compound according to claim 1, wherein the compound is represented by Formula VI:



wherein Q is any halogen.

23. (Previously presented) The compound according to claim 1, wherein the compound is represented by Formula VII:



wherein G is selected from the group consisting of: hydrogen, halogen, hydroxy, amino, nitro, carboxy, C<sub>1</sub>-C<sub>5</sub> alkoxy, C<sub>1</sub>-C<sub>5</sub> alkyl and C<sub>6</sub>-C<sub>12</sub> aryl and -NHC(O)CH<sub>2</sub>Q wherein Q is halogen, -OS(O)<sub>2</sub>CH<sub>3</sub>, -OS(O)<sub>2</sub>C<sub>6</sub>H<sub>5</sub> or -OS(O)<sub>2</sub>-p tolyl.

24. (Previously presented) The compound according to claim 23, wherein G is selected from the group consisting of: hydrogen, halogen, hydroxy, amino, nitro, carboxy, C<sub>1</sub>-C<sub>5</sub> alkoxy, methyl, ethyl, iso-propyl, tert-butyl, phenyl, and -NHC(O)CH<sub>2</sub>Q wherein Q is halogen, -OS(O)<sub>2</sub>CH<sub>3</sub>, -OS(O)<sub>2</sub>C<sub>6</sub>H<sub>5</sub> or -OS(O)<sub>2</sub>-p tolyl.

25. (Previously presented) The compound according to claim 23, wherein G is selected from the group consisting of hydroxy, fluorine, amino, and nitro.

26-29. (Canceled)

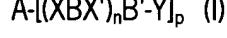
30. (Previously presented) The compound according to claim 1, which is linked to a detector group.
31. (Previously presented) The compound of claim 30, wherein said detector group is selected from the group consisting of fluorophore, biotin, a radionucleotide, fluorescein, and a group comprising a transition element.
32. (Previously presented) The compound according to claim 30, wherein the detector group is biotin.
33. (Previously presented) The compound according to claim 31, wherein the radionucleotide is selected from the group consisting of  $^3\text{H}$ ,  $^{14}\text{C}$ ,  $^{32}\text{P}$ ,  $^{33}\text{P}$ ,  $^{35}\text{S}$ ,  $^{125}\text{I}$ ,  $^{131}\text{I}$ ,  $^{123}\text{I}$ ,  $^{111}\text{In}$ ,  $^{105}\text{Rh}$ ,  $^{153}\text{Sm}$ ,  $^{67}\text{Cu}$ ,  $^{67}\text{Ga}$ ,  $^{166}\text{Ho}$ ,  $^{177}\text{Lu}$ ,  $^{186}\text{Re}$ ,  $^{188}\text{Re}$ , and  $^{99\text{m}}\text{Tc}$ .
34. (Previously presented) The compound according to claim 33, wherein the radionucleotide is selected from the group consisting of  $^3\text{H}$  or  $^{14}\text{C}$ .

35-37 (Canceled)

38. (Previously presented) A pharmaceutical composition comprising a compound of claim 1, together with a pharmaceutically acceptable carrier, adjuvant and/or diluent.

39-43. (Canceled)

44. (Previously presented) The compound according to claim 24, wherein G is selected from the group consisting of hydroxy, fluorine, amino, and nitro.
45. (New) A compound according to Formula (I) or a salt thereof:



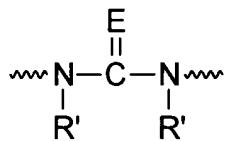
wherein

A comprises at least one substantially cell-membrane impermeable pendant group selected from natural, unnatural and synthetic amino acids, peptides, polypeptides, thiol containing proteins and oligosaccharides, or a combination thereof;

X is selected from NR-, S(O)-, -S(O)O-, -S(O)<sub>2</sub>-, -S(O)<sub>2</sub>O-, -C(O)-, -C(S)-, -C(O)O-, C(S)O-, -C(S)S-, -P(O)(R<sub>1</sub>)-, -P(O)(R<sub>1</sub>)O-, or is absent;

B is selected from C<sub>1</sub>-C<sub>10</sub> alkylene, C<sub>2</sub>-C<sub>10</sub> alkenylene, C<sub>2</sub>-C<sub>10</sub> alkynylene, C<sub>3</sub>-C<sub>10</sub> cycloalkylene, C<sub>5</sub>-C<sub>10</sub> cycloalkenylene, C<sub>3</sub>-C<sub>10</sub> heterocycloalkylene, C<sub>5</sub>-C<sub>10</sub> heterocycloalkenylene, C<sub>6</sub>-C<sub>12</sub> arylene, heteroarylene or C<sub>2</sub>-C<sub>10</sub> acyl;

X' is selected from NR-, -O-, -S-, -Se-, -S-S-, S(O)-, -OS(O)-, OS(O)O-, -OS(O)<sub>2</sub>, -OS(O)<sub>2</sub>O-, -S(O)O-, -S(O)<sub>2</sub>-, -S(O)<sub>2</sub>O-, -OP(O)(R<sub>1</sub>)-, -OP(O)(R<sub>1</sub>)O-, -OP(O)(R<sub>1</sub>)OP(O)(R<sub>1</sub>)O-, -C(O)-, -C(S)-, -C(O)O-, C(S)O-, -C(S)S-, -P(O)(R<sub>1</sub>)-, -P(O)(R<sub>1</sub>)O-,



or is absent; wherein E is O, S, Se, NR or N(R)<sub>2</sub><sup>+</sup>;

and

B' is selected from C<sub>1</sub>-C<sub>10</sub> alkylene, C<sub>2</sub>-C<sub>10</sub> alkenylene, C<sub>2</sub>-C<sub>10</sub> alkynylene, C<sub>3</sub>-C<sub>10</sub> cycloalkylene, C<sub>5</sub>-C<sub>10</sub> cycloalkenylene, C<sub>3</sub>-C<sub>10</sub> heterocycloalkylene, C<sub>5</sub>-C<sub>10</sub> heterocycloalkenylene, C<sub>6</sub>-C<sub>12</sub> arylene, and heteroarylene, or is absent;

wherein

each R is independently selected from hydrogen, C<sub>1</sub>-C<sub>10</sub> alkyl, C<sub>2</sub>-C<sub>10</sub> alkenyl, C<sub>2</sub>-C<sub>10</sub> alkynyl, C<sub>3</sub>-C<sub>10</sub> cycloalkyl, C<sub>5</sub>-C<sub>10</sub> cycloalkenyl, C<sub>3</sub>-C<sub>10</sub> heterocycloalkyl, C<sub>5</sub>-C<sub>10</sub> heterocycloalkenyl, C<sub>6</sub>-C<sub>12</sub> aryl, heteroaryl, OR<sub>2</sub> or C<sub>2</sub>-C<sub>10</sub> acyl;

R' is the same as R or two R' are taken together with the nitrogen atoms to which they are attached to form a 5 or 6-membered saturated or unsaturated heterocyclic ring;

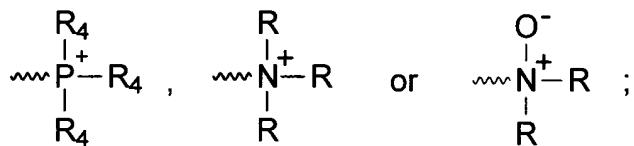
each R<sub>1</sub> is independently selected from hydrogen, C<sub>1</sub>-C<sub>10</sub> alkyl, C<sub>2</sub>-C<sub>10</sub> alkenyl, C<sub>2</sub>-C<sub>10</sub> alkynyl, C<sub>3</sub>-C<sub>10</sub> cycloalkyl, C<sub>5</sub>-C<sub>10</sub> cycloalkenyl, C<sub>3</sub>-C<sub>10</sub> heterocycloalkyl, C<sub>5</sub>-C<sub>10</sub> heterocycloalkenyl, C<sub>6</sub>-C<sub>12</sub> aryl, heteroaryl, halo, OR<sub>2</sub> or N(R)<sub>2</sub>;

each R<sub>2</sub> is independently selected from hydrogen, C<sub>1</sub>-C<sub>10</sub> alkyl, C<sub>2</sub>-C<sub>10</sub> alkenyl, C<sub>2</sub>-C<sub>10</sub> alkynyl, C<sub>3</sub>-C<sub>10</sub> cycloalkyl, C<sub>5</sub>-C<sub>10</sub> cycloalkenyl, C<sub>3</sub>-C<sub>10</sub> heterocycloalkyl, C<sub>5</sub>-C<sub>10</sub> heterocycloalkenyl, C<sub>6</sub>-C<sub>12</sub> aryl, heteroaryl or -C(O)R<sub>5</sub>;

each R<sub>5</sub> is independently selected from hydrogen, C<sub>1</sub>-C<sub>10</sub> alkyl, C<sub>2</sub>-C<sub>10</sub> alkenyl, C<sub>2</sub>-C<sub>10</sub> alkynyl, C<sub>3</sub>-C<sub>10</sub> cycloalkyl, C<sub>5</sub>-C<sub>10</sub> cycloalkenyl, C<sub>3</sub>-C<sub>10</sub> heterocycloalkyl, C<sub>5</sub>-C<sub>10</sub> heterocycloalkenyl, C<sub>6</sub>-C<sub>12</sub> aryl, heteroaryl, C<sub>1</sub>-C<sub>10</sub> alkoxy, C<sub>3</sub>-C<sub>10</sub> alkenyloxy, C<sub>3</sub>-C<sub>10</sub>

alkynyoxy, C<sub>3</sub>-C<sub>10</sub> cycloalkyloxy, C<sub>5</sub>-C<sub>10</sub> cycloalkenyloxy, C<sub>3</sub>-C<sub>10</sub> heterocycloalkyloxy, C<sub>5</sub>-C<sub>10</sub> heterocycloalkenyloxy, C<sub>6</sub>-C<sub>12</sub> aryloxy, heteroaryloxy, C<sub>1</sub>-C<sub>10</sub> alkylthio, C<sub>3</sub>-C<sub>10</sub> alkenylthio, C<sub>3</sub>-C<sub>10</sub> alkynylthio, C<sub>3</sub>-C<sub>10</sub> cycloalkylthio, C<sub>5</sub>-C<sub>10</sub> cycloalkenythio, C<sub>3</sub>-C<sub>10</sub> heterocycloalkylthio, C<sub>5</sub>-C<sub>10</sub> heterocycloalkenythio, C<sub>6</sub>-C<sub>12</sub> arylthio, heteroarylthio, OH, SH or N(R)<sub>2</sub>;

wherein for each instance that B and/or B' is arylene, the substituents directly attached to the respective arylene rings are in a para, meta or ortho relationship, and wherein each alkylene, alkenylene, alkynylene, cycloalkylene, cycloalkenylene, heterocycloalkylene, heterocycloalkenylene, arylene, heteroarylene and acyl are optionally independently substituted with hydrogen, C<sub>1</sub>-C<sub>10</sub> alkyl, C<sub>2</sub>-C<sub>10</sub> alkenyl, C<sub>2</sub>-C<sub>10</sub> alkynyl, C<sub>3</sub>-C<sub>10</sub> cycloalkyl, C<sub>5</sub>-C<sub>10</sub> cycloalkenyl, C<sub>3</sub>-C<sub>10</sub> heterocycloalkyl, C<sub>5</sub>-C<sub>10</sub> heterocycloalkenyl, C<sub>6</sub>-C<sub>12</sub> aryl, heteroaryl, halo, cyano, cyanate, isocyanate, OR<sub>2a</sub>, SR<sub>6</sub>, nitro, arsenoxide, -S(O)R<sub>3</sub>, -OS(O)R<sub>3</sub>, -S(O)<sub>2</sub>R<sub>3</sub>, -OS(O)<sub>2</sub>R<sub>3</sub>, -P(O)R<sub>4</sub>R<sub>4</sub>, -OP(O)R<sub>4</sub>R<sub>4</sub>, -N(R'')<sub>2</sub>, -NRC(O)(CH<sub>2</sub>)<sub>m</sub>Q, -C(O)R<sub>5</sub>,



wherein R, R<sub>1</sub> and R<sub>5</sub> are as defined above; and

R<sub>2a</sub> is selected from hydrogen, C<sub>1</sub>-C<sub>5</sub> alkyl, C<sub>2</sub>-C<sub>5</sub> alkenyl, C<sub>2</sub>-C<sub>5</sub> alkynyl, C<sub>3</sub>-C<sub>10</sub> cycloalkyl, C<sub>5</sub>-C<sub>10</sub> cycloalkenyl, C<sub>6</sub>-C<sub>12</sub> aryl, -S(O)R<sub>3</sub>, -S(O)<sub>2</sub>R<sub>3</sub>, -P(O)(R<sub>4</sub>)<sub>2</sub>, N(R)<sub>2</sub> or -C(O)R<sub>5</sub>;

each R<sub>3</sub> is independently selected from hydrogen, C<sub>1</sub>-C<sub>10</sub> alkyl, C<sub>2</sub>-C<sub>10</sub> alkenyl, C<sub>2</sub>-C<sub>10</sub> alkynyl, C<sub>3</sub>-C<sub>10</sub> cycloalkyl, C<sub>5</sub>-C<sub>10</sub> cycloalkenyl, C<sub>3</sub>-C<sub>10</sub> heterocycloalkyl, C<sub>5</sub>-C<sub>10</sub> heterocycloalkenyl, C<sub>6</sub>-C<sub>12</sub> aryl, heteroaryl, C<sub>1</sub>-C<sub>10</sub> alkoxy, C<sub>3</sub>-C<sub>10</sub> alkenyloxy, C<sub>3</sub>-C<sub>10</sub> alkynyoxy, C<sub>3</sub>-C<sub>10</sub> cycloalkyloxy, C<sub>5</sub>-C<sub>10</sub> cycloalkenyloxy, C<sub>3</sub>-C<sub>10</sub> heterocycloalkyloxy, C<sub>5</sub>-C<sub>10</sub> heterocycloalkenyloxy, C<sub>6</sub>-C<sub>12</sub> aryloxy, heteroaryloxy, C<sub>1</sub>-C<sub>10</sub> alkylthio, C<sub>3</sub>-C<sub>10</sub> alkenylthio, C<sub>3</sub>-C<sub>10</sub> alkynylthio, C<sub>3</sub>-C<sub>10</sub> cycloalkylthio, C<sub>5</sub>-C<sub>10</sub> cycloalkenythio, C<sub>3</sub>-C<sub>10</sub> heterocycloalkylthio, C<sub>5</sub>-C<sub>10</sub> heterocycloalkenythio, C<sub>6</sub>-C<sub>12</sub> arylthio, heteroarylthio or N(R)<sub>2</sub>;

each R<sub>4</sub> is independently selected from hydrogen, C<sub>1</sub>-C<sub>10</sub> alkyl, C<sub>2</sub>-C<sub>10</sub> alkenyl, C<sub>2</sub>-C<sub>10</sub> alkynyl, C<sub>3</sub>-C<sub>10</sub> cycloalkyl, C<sub>5</sub>-C<sub>10</sub> cycloalkenyl, C<sub>3</sub>-C<sub>10</sub> heterocycloalkyl, C<sub>5</sub>-C<sub>10</sub>

heterocycloalkenyl, C<sub>6</sub>-C<sub>12</sub> aryl, heteroaryl, C<sub>1</sub>-C<sub>10</sub> alkoxy, C<sub>3</sub>-C<sub>10</sub> alkenyloxy, C<sub>3</sub>-C<sub>10</sub> alkynyloxy, C<sub>3</sub>-C<sub>10</sub> cycloalkyloxy, C<sub>5</sub>-C<sub>10</sub> cycloalkenyloxy, C<sub>3</sub>-C<sub>10</sub> heterocycloalkyloxy, C<sub>5</sub>-C<sub>10</sub> heterocycloalkenyloxy, C<sub>6</sub>-C<sub>12</sub> aryloxy, heteroaryloxy, C<sub>1</sub>-C<sub>10</sub> alkylthio, C<sub>3</sub>-C<sub>10</sub> alkenylthio, C<sub>3</sub>-C<sub>10</sub> alkynylthio, C<sub>3</sub>-C<sub>10</sub> cycloalkylthio, C<sub>5</sub>-C<sub>10</sub> cycloalkenythio, C<sub>3</sub>-C<sub>10</sub> heterocycloalkylthio, C<sub>5</sub>-C<sub>10</sub> heterocycloalkenylthio, C<sub>6</sub>-C<sub>12</sub> arylthio, heteroarylthio, halo or N(R)<sub>2</sub>;

R<sub>6</sub> is selected from C<sub>1</sub>-C<sub>10</sub> alkyl, C<sub>2</sub>-C<sub>10</sub> alkenyl, C<sub>2</sub>-C<sub>10</sub> alkynyl, C<sub>3</sub>-C<sub>10</sub> cycloalkyl, C<sub>5</sub>-C<sub>10</sub> cycloalkenyl, C<sub>3</sub>-C<sub>10</sub> heterocycloalkyl, C<sub>5</sub>-C<sub>10</sub> heterocycloalkenyl, C<sub>6</sub>-C<sub>12</sub> aryl, heteroaryl, C<sub>1</sub>-C<sub>10</sub> alkylthio, C<sub>3</sub>-C<sub>10</sub> alkenylthio, C<sub>3</sub>-C<sub>10</sub> alkynylthio, C<sub>3</sub>-C<sub>10</sub> cycloalkylthio, C<sub>5</sub>-C<sub>10</sub> cycloalkenylthio, C<sub>3</sub>-C<sub>10</sub> heterocycloalkylthio, C<sub>5</sub>-C<sub>10</sub> heterocycloalkenylthio, C<sub>6</sub>-C<sub>12</sub> arylthio, heteroarylthio, -S(O)R<sub>3</sub>, -S(O)<sub>2</sub>R<sub>3</sub> or -C(O)R<sub>5</sub>,

R" is the same as R or two R" taken together with the N atom to which they are attached may form a saturated, unsaturated or aromatic heterocyclic ring system;

Q is selected from halogen and -OS(O)<sub>2</sub>Q<sub>1</sub>; wherein Q<sub>1</sub> is selected from C<sub>1</sub>-C<sub>4</sub> alkyl, C<sub>1</sub>-C<sub>4</sub> perfluoroalkyl, phenyl, p-methylphenyl;

m is an integer selected from 1 to 5,

Y comprises at least one arsenoxide group;

p is an integer selected from 1 to 10;

n is an integer selected from 0 to 20, and

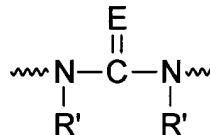
wherein the sum total of carbon atoms in A and (XB')<sub>n</sub>B' together, is greater than 6.

46. (New) The compound according to claim 45, wherein A is selected from the group consisting of glutathione, glucosamine, cysteinylglycine, cysteic acid, aspartic acid, glutamic acid, lysine, and arginine, and wherein the sulfur atom of each sulfur containing compound are optionally oxidised to form a sulfoxide or sulfone.
47. (New) The compound according to claim 1, wherein A is glutathione.
48. (New) The compound according to claim 45, wherein p is an integer from 1 to 5.
49. (New) The compound according to claim 45, wherein p is 1.
50. (New) The compound according to claim 45, wherein

X is selected from NR-, -C(O)-, -C(S)-, -C(O)O-, -C(S)O-, -C(S)S-, or is absent;

B is selected from C<sub>1</sub>-C<sub>5</sub> alkylene, C<sub>2</sub>-C<sub>5</sub> alkenylene, C<sub>2</sub>-C<sub>5</sub> alkynylene, C<sub>3</sub>-C<sub>10</sub> cycloalkylene, C<sub>5</sub>-C<sub>10</sub> cycloalkenylene, C<sub>6</sub>-C<sub>12</sub> arylene or C<sub>2</sub>-C<sub>5</sub> acyl;

X' is selected from -O-, -S-, -NR-, -S-S-, -S(O)-, -S(O)<sub>2</sub>-, -P(O)(R<sub>1</sub>)-, -OP(O)(R<sub>1</sub>)-, OP(O)(R<sub>1</sub>)O-, -OP(O)(R<sub>1</sub>)OP(O)(R<sub>1</sub>)O-, -C(O)-, -C(S)-, -C(O)O-, -C(S)O-, -C(S)S-, -Se-,



or is absent; wherein E is O, S or N(R)<sub>2</sub><sup>+</sup>;

n is 0, 1 or 2; and

B' is C<sub>1</sub>-C<sub>5</sub> alkylene, C<sub>2</sub>-C<sub>5</sub> alkenylene, C<sub>2</sub>-C<sub>5</sub> alkynylene, C<sub>3</sub>-C<sub>10</sub> cycloalkylene, C<sub>5</sub>-C<sub>10</sub> cycloalkenylene, C<sub>6</sub>-C<sub>12</sub> arylene or is absent; and wherein

each R is independently selected from hydrogen, C<sub>1</sub>-C<sub>5</sub> alkyl, C<sub>2</sub>-C<sub>5</sub> alkenyl, C<sub>2</sub>-C<sub>5</sub> alkynyl, C<sub>3</sub>-C<sub>10</sub> cycloalkyl, C<sub>5</sub>-C<sub>10</sub> cycloalkenyl, C<sub>6</sub>-C<sub>12</sub> aryl, OR<sub>2</sub> or C<sub>2</sub>-C<sub>10</sub> acyl;

R' is the same as R;

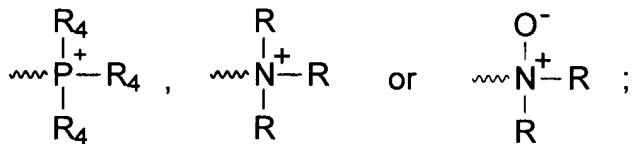
each R<sub>1</sub> is independently selected from hydrogen, C<sub>1</sub>-C<sub>5</sub> alkyl, C<sub>2</sub>-C<sub>5</sub> alkenyl, C<sub>2</sub>-C<sub>5</sub> alkynyl, C<sub>3</sub>-C<sub>10</sub> cycloalkyl, C<sub>5</sub>-C<sub>10</sub> cycloalkenyl, C<sub>6</sub>-C<sub>12</sub> aryl, halo, OR<sub>2</sub> or N(R)<sub>2</sub>;

each R<sub>2</sub> is independently selected from hydrogen, C<sub>1</sub>-C<sub>5</sub> alkyl, C<sub>2</sub>-C<sub>5</sub> alkenyl, C<sub>2</sub>-C<sub>5</sub> alkynyl, C<sub>3</sub>-C<sub>10</sub> cycloalkyl, C<sub>5</sub>-C<sub>10</sub> cycloalkenyl, C<sub>6</sub>-C<sub>12</sub> aryl or -C(O)R<sub>5</sub>;

each R<sub>5</sub> is independently selected from hydrogen, C<sub>1</sub>-C<sub>5</sub> alkyl, C<sub>2</sub>-C<sub>5</sub> alkenyl, C<sub>2</sub>-C<sub>5</sub> alkynyl, C<sub>3</sub>-C<sub>10</sub> cycloalkyl, C<sub>5</sub>-C<sub>10</sub> cycloalkenyl, C<sub>6</sub>-C<sub>12</sub> aryl, C<sub>1</sub>-C<sub>5</sub> alkoxy, C<sub>3</sub>-C<sub>5</sub> alkenyloxy, C<sub>3</sub>-C<sub>5</sub> alkynyoxy, C<sub>3</sub>-C<sub>10</sub> cycloalkyloxy, C<sub>5</sub>-C<sub>10</sub> cycloalkenyloxy, C<sub>6</sub>-C<sub>12</sub> aryloxy, C<sub>1</sub>-C<sub>5</sub> alkylthio, C<sub>3</sub>-C<sub>5</sub> alkenylthio, C<sub>3</sub>-C<sub>5</sub> alkynylthio, C<sub>3</sub>-C<sub>10</sub> cycloalkylthio, C<sub>5</sub>-C<sub>10</sub> cycloalkenylthio, C<sub>6</sub>-C<sub>12</sub> arylthio, OH, SH or N(R)<sub>2</sub>;

wherein each instance of arylene may have substituents A and X or X and Y in a para, meta or ortho relationship, and

wherein each alkylene, alkenylene, alkynylene, cycloalkylene, cycloalkenylene, arylene, and acyl are optionally independently substituted with hydrogen, C<sub>1</sub>-C<sub>5</sub> alkyl, C<sub>2</sub>-C<sub>5</sub> alkenyl, C<sub>2</sub>-C<sub>5</sub> alkynyl, C<sub>3</sub>-C<sub>10</sub> cycloalkyl, C<sub>5</sub>-C<sub>10</sub> cycloalkenyl, C<sub>6</sub>-C<sub>12</sub> aryl, halo, cyanate, isocyanate, OR<sub>2a</sub>, SR<sub>6</sub>, nitro, arsenoxide, -S(O)R<sub>3</sub>, -OS(O)R<sub>3</sub>, -S(O)<sub>2</sub>R<sub>3</sub>, -OS(O)<sub>2</sub>R<sub>3</sub>, -P(O)R<sub>4</sub>R<sub>4</sub>, -OP(O)R<sub>4</sub>R<sub>4</sub>, -N(R'')<sub>2</sub>, NRC(O)(CH<sub>2</sub>)<sub>m</sub>Q, -C(O)R<sub>5</sub>,



wherein R, R<sub>1</sub> and R<sub>5</sub> are as defined above; and

R<sub>2a</sub> selected from hydrogen, C<sub>1</sub>-C<sub>5</sub> alkyl, C<sub>2</sub>-C<sub>5</sub> alkenyl, C<sub>2</sub>-C<sub>5</sub> alkynyl, C<sub>3</sub>-C<sub>10</sub> cycloalkyl, C<sub>5</sub>-C<sub>10</sub> cycloalkenyl, C<sub>6</sub>-C<sub>12</sub> aryl, -S(O)R<sub>3</sub>, -S(O)<sub>2</sub>R<sub>3</sub>, -P(O)(R<sub>4</sub>)<sub>2</sub>, N(R)<sub>2</sub> or -C(O)R<sub>5</sub>;

each R<sub>3</sub> is independently selected from hydrogen, C<sub>1</sub>-C<sub>5</sub> alkyl, C<sub>2</sub>-C<sub>5</sub> alkenyl, C<sub>2</sub>-C<sub>5</sub> alkynyl, C<sub>3</sub>-C<sub>10</sub> cycloalkyl, C<sub>5</sub>-C<sub>10</sub> cycloalkenyl, C<sub>6</sub>-C<sub>12</sub> aryl, C<sub>1</sub>-C<sub>5</sub> alkoxy, C<sub>3</sub>-C<sub>5</sub> alkenyloxy, C<sub>3</sub>-C<sub>5</sub> alkynyloxy, C<sub>3</sub>-C<sub>10</sub> cycloalkyloxy, C<sub>5</sub>-C<sub>10</sub> cycloalkenyloxy, C<sub>6</sub>-C<sub>12</sub> aryloxy, C<sub>1</sub>-C<sub>5</sub> alkylthio, C<sub>3</sub>-C<sub>5</sub> alkenylthio, C<sub>3</sub>-C<sub>5</sub> alkynylthio, C<sub>3</sub>-C<sub>10</sub> cycloalkylthio, C<sub>5</sub>-C<sub>10</sub> cycloalkenylthio, C<sub>6</sub>-C<sub>12</sub> arylthio or N(R)<sub>2</sub>;

each R<sub>4</sub> is independently selected from hydrogen, C<sub>1</sub>-C<sub>5</sub> alkyl, C<sub>2</sub>-C<sub>5</sub> alkenyl, C<sub>2</sub>-C<sub>5</sub> alkynyl, C<sub>3</sub>-C<sub>10</sub> cycloalkyl, C<sub>5</sub>-C<sub>10</sub> cycloalkenyl, C<sub>6</sub>-C<sub>12</sub> aryl, C<sub>1</sub>-C<sub>5</sub> alkoxy, C<sub>3</sub>-C<sub>5</sub> alkenyloxy, C<sub>3</sub>-C<sub>5</sub> alkynyloxy, C<sub>3</sub>-C<sub>10</sub> cycloalkyloxy, C<sub>5</sub>-C<sub>10</sub> cycloalkenyloxy, C<sub>6</sub>-C<sub>12</sub> aryloxy, C<sub>1</sub>-C<sub>5</sub> alkylthio, C<sub>3</sub>-C<sub>5</sub> alkenylthio, C<sub>3</sub>-C<sub>5</sub> alkynylthio, C<sub>3</sub>-C<sub>5</sub> cycloalkylthio, C<sub>5</sub>-C<sub>5</sub> cycloalkenylthio, C<sub>6</sub>-C<sub>12</sub> arylthio, halo or N(R)<sub>2</sub>;

R<sub>6</sub> is independently selected from C<sub>1</sub>-C<sub>5</sub> alkyl, C<sub>2</sub>-C<sub>5</sub> alkenyl, C<sub>2</sub>-C<sub>5</sub> alkynyl, C<sub>3</sub>-C<sub>10</sub> cycloalkyl, C<sub>5</sub>-C<sub>10</sub> cycloalkenyl, C<sub>6</sub>-C<sub>12</sub> aryl, C<sub>1</sub>-C<sub>5</sub> alkylthio, C<sub>3</sub>-C<sub>5</sub> alkenylthio, C<sub>3</sub>-C<sub>5</sub> alkynylthio, C<sub>3</sub>-C<sub>10</sub> cycloalkylthio, C<sub>5</sub>-C<sub>10</sub> cycloalkenylthio, C<sub>6</sub>-C<sub>12</sub> arylthio, -S(O)R<sub>3</sub>, -S(O)<sub>2</sub>R<sub>3</sub> or -C(O)R<sub>5</sub>,

R" is the same as R;

Q is selected from halogen and -OS(O)<sub>2</sub>Q<sub>1</sub>; wherein Q<sub>1</sub> is selected from C<sub>1</sub>-C<sub>4</sub> alkyl, C<sub>1</sub>-C<sub>4</sub> perfluoroalkyl, phenyl, p-methylphenyl; and

m is an integer from 1 to 5, and

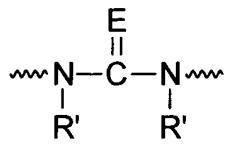
wherein the sum total of carbon atoms in A and (XBX')<sub>n</sub>B' together, is greater than 6.

51. (New) A compound according to claim 45, wherein

X is absent;

B is selected from C<sub>1</sub>-C<sub>5</sub> alkylene, C<sub>6</sub>-C<sub>12</sub> arylene or C<sub>2</sub>-C<sub>5</sub> acyl;

X' is selected from -O-, -S-, -NR-, -S-S-, -S(O)-, -S(O)<sub>2</sub>-, -P(O)(R<sub>1</sub>)-, -C(O)-, -C(S)-, -C(O)O-, -C(S)O-, -Se-,



or absent; wherein E is O, S or  $\text{N}(\text{R})_2^+$ ;

n is 0, 1 or 2; and

B' is  $\text{C}_1\text{-C}_5$  alkylene,  $\text{C}_6\text{-C}_{12}$  arylene or is absent; and wherein

each R is independently selected from hydrogen,  $\text{C}_1\text{-C}_5$  alkyl,  $\text{C}_3\text{-C}_{10}$  cycloalkyl,  $\text{C}_6\text{-C}_{12}$  aryl,  $\text{OR}_2$  or  $\text{C}_2\text{-C}_5$  acyl;

R' is the same as R;

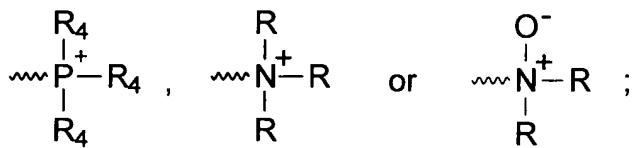
each  $\text{R}_1$  is independently selected from hydrogen,  $\text{C}_1\text{-C}_5$  alkyl,  $\text{C}_3\text{-C}_{10}$  cycloalkyl,  $\text{C}_6\text{-C}_{12}$  aryl, halo,  $\text{OR}_2$  or  $\text{N}(\text{R})_2$ ;

each  $\text{R}_2$  is independently selected from hydrogen,  $\text{C}_1\text{-C}_5$  alkyl,  $\text{C}_3\text{-C}_{10}$  cycloalkyl,  $\text{C}_6\text{-C}_{12}$  aryl or  $-\text{C}(\text{O})\text{R}_5$ ;

each  $\text{R}_5$  is independently selected from hydrogen,  $\text{C}_1\text{-C}_5$  alkyl,  $\text{C}_2\text{-C}_5$  alkenyl,  $\text{C}_3\text{-C}_{10}$  cycloalkyl,  $\text{C}_5\text{-C}_{10}$  cycloalkenyl,  $\text{C}_6\text{-C}_{12}$  aryl,  $\text{C}_1\text{-C}_5$  alkoxy,  $\text{C}_3\text{-C}_5$  alkenyloxy,  $\text{C}_3\text{-C}_{10}$  cycloalkyloxy,  $\text{C}_5\text{-C}_{10}$  cycloalkenyloxy,  $\text{C}_6\text{-C}_{12}$  aryloxy,  $\text{C}_1\text{-C}_5$  alkylthio,  $\text{C}_3\text{-C}_5$  alkenylthio,  $\text{C}_3\text{-C}_{10}$  cycloalkylthio,  $\text{C}_5\text{-C}_{10}$  cycloalkenylthio,  $\text{C}_6\text{-C}_{12}$  arylthio, OH, SH or  $\text{N}(\text{R})_2$ ;

wherein for each instance that B and/or B' is arylene, the substituents directly attached to the respective arylene rings are in a para, meta or ortho relationship, and

wherein each alkylene, alkenylene, alkynylene, cycloalkylene, cycloalkenylene, arylene, and acyl are optionally independently substituted with hydrogen,  $\text{C}_1\text{-C}_5$  alkyl,  $\text{C}_2\text{-C}_5$  alkenyl,  $\text{C}_2\text{-C}_5$  alkynyl,  $\text{C}_3\text{-C}_{10}$  cycloalkyl,  $\text{C}_5\text{-C}_{10}$  cycloalkenyl,  $\text{C}_6\text{-C}_{12}$  aryl, halo, cyano, cyanate, isocyanate,  $\text{OR}_{2a}$ ,  $\text{SR}_6$ , nitro, arsenoxide,  $-\text{S}(\text{O})\text{R}_3$ ,  $-\text{OS}(\text{O})\text{R}_3$ ,  $-\text{S}(\text{O})_2\text{R}_3$ ,  $-\text{OS}(\text{O})_2\text{R}_3$ ,  $-\text{P}(\text{O})\text{R}_4\text{R}_4$ ,  $-\text{OP}(\text{O})\text{R}_4\text{R}_4$ ,  $-\text{N}(\text{R}'')_2$ ,  $-\text{NRC}(\text{O})(\text{CH}_2)_m\text{Q}$ ,  $-\text{C}(\text{O})\text{R}_5$ ,



wherein R,  $\text{R}_1$  and  $\text{R}_5$  are as defined above; and

$\text{R}_{2a}$  is selected from hydrogen,  $\text{C}_1\text{-C}_5$  alkyl,  $\text{C}_3\text{-C}_{10}$  cycloalkyl,  $\text{C}_6\text{-C}_{12}$  aryl,  $-\text{S}(\text{O})\text{R}_3$ ,  $-\text{S}(\text{O})_2\text{R}_3$ ,  $-\text{P}(\text{O})(\text{R}_4)_2$  and  $-\text{C}(\text{O})\text{R}_5$ ;

each R<sub>3</sub> is independently selected from hydrogen, C<sub>1</sub>-C<sub>5</sub> alkyl, C<sub>3</sub>-C<sub>10</sub> cycloalkyl, C<sub>6</sub>-C<sub>12</sub> aryl, C<sub>1</sub>-C<sub>5</sub> alkoxy, C<sub>3</sub>-C<sub>10</sub> cycloalkyloxy, C<sub>6</sub>-C<sub>12</sub> aryloxy, C<sub>1</sub>-C<sub>5</sub> alkylthio, C<sub>3</sub>-C<sub>10</sub> cycloalkylthio, C<sub>6</sub>-C<sub>12</sub> arylthio or N(R)<sub>2</sub>;

each R<sub>4</sub> is independently selected from hydrogen, C<sub>1</sub>-C<sub>5</sub> alkyl, C<sub>3</sub>-C<sub>10</sub> cycloalkyl, C<sub>6</sub>-C<sub>12</sub> aryl, C<sub>1</sub>-C<sub>5</sub> alkoxy, C<sub>3</sub>-C<sub>10</sub> cycloalkyloxy, C<sub>6</sub>-C<sub>12</sub> aryloxy, halo or N(R)<sub>2</sub>;

R<sub>6</sub> is selected from C<sub>1</sub>-C<sub>5</sub> alkyl, C<sub>3</sub>-C<sub>10</sub> cycloalkyl, C<sub>6</sub>-C<sub>12</sub> aryl, C<sub>1</sub>-C<sub>5</sub> alkylthio, C<sub>3</sub>-C<sub>10</sub> cycloalkylthio, C<sub>6</sub>-C<sub>12</sub> arylthio, -S(O)R<sub>3</sub>, -S(O)<sub>2</sub>R<sub>3</sub> or -C(O)R<sub>5</sub>,

$R''$  is the same as  $R$ ;

Q is selected from halogen and  $-\text{OS}(\text{O})_2\text{Q}_1$ ; wherein  $\text{Q}_1$  is selected from  $\text{C}_1\text{-}\text{C}_4$  alkyl,  $\text{C}_1\text{-}\text{C}_4$  perfluoroalkyl, phenyl, *p*-methylphenyl; and

m is 1 to 5.

52. (New) A compound according to claim 45, wherein

X is absent;

B is selected from C<sub>1</sub>-C<sub>5</sub> alkylene, C<sub>6</sub>-C<sub>12</sub> arylene or C<sub>2</sub>-C<sub>5</sub> acyl;

X' is selected from -O-, -S-, -NR-, -C(O)-, -C(O)O-, or is absent;

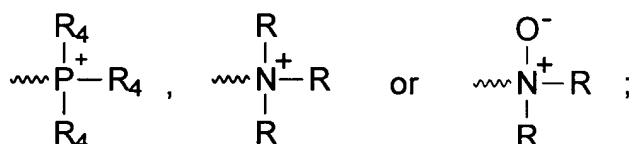
n is 1; and

B' is C<sub>1</sub>-C<sub>5</sub> alkylene, C<sub>6</sub>-C<sub>12</sub> arylene or is absent; and

R is selected from hydrogen, C<sub>1</sub>-C<sub>5</sub> alkyl, C<sub>6</sub>-C<sub>12</sub> aryl or C<sub>2</sub>-C<sub>5</sub> acyl;

wherein for each instance that B and/or B' is arylene, the substituents directly attached to the respective arylene rings are in a para, meta or ortho relationship, and

wherein each alkylene, arylene, and acyl are optionally independently substituted with hydrogen, C<sub>1</sub>-C<sub>5</sub> alkyl, C<sub>2</sub>-C<sub>5</sub> alkenyl, C<sub>2</sub>-C<sub>5</sub> alkynyl, C<sub>3</sub>-C<sub>10</sub> cycloalkyl, C<sub>5</sub>-C<sub>10</sub> cycloalkenyl, C<sub>6</sub>-C<sub>12</sub> aryl, halo, cyano, cyanate, isocyanate, OR<sub>2a</sub>, SR<sub>6</sub>, nitro, arsenoxide, -S(O)R<sub>3</sub>, -S(O)<sub>2</sub>R<sub>3</sub>, -P(O)R<sub>4</sub>R<sub>4</sub>, -N(R")<sub>2</sub>, -NRC(O)(CH<sub>2</sub>)<sub>m</sub>Q, -C(O)R<sub>5</sub>,



wherein each R is independently selected from hydrogen, C<sub>1</sub>-C<sub>5</sub> alkyl, C<sub>6</sub>-C<sub>12</sub> aryl or C<sub>2</sub>-C<sub>5</sub> acyl;

$R_{2a}$  is selected from hydrogen,  $C_1$ - $C_5$  alkyl,  $C_6$ - $C_{12}$  aryl,  $-S(O)R_3$ ,  $-S(O)_2R_3$ ,  $-P(O)(R_4)_2$  or  $-C(O)R_5$ ;  
each  $R_3$  is independently selected from hydrogen,  $C_1$ - $C_5$  alkyl,  $C_6$ - $C_{12}$  aryl,  $C_1$ - $C_5$  alkoxy,  $C_6$ - $C_{12}$  aryloxy,  $C_1$ - $C_5$  alkylthio, or  $C_6$ - $C_{12}$  arylthio;  
each  $R_4$  is independently selected from hydrogen,  $C_1$ - $C_5$  alkyl,  $C_6$ - $C_{12}$  aryl,  $C_1$ - $C_5$  alkoxy,  $C_6$ - $C_{12}$  aryloxy,  $C_1$ - $C_5$  alkylthio,  $C_6$ - $C_{12}$  arylthio, halo or  $N(R)_2$ ;  
each  $R_5$  is independently selected from hydrogen,  $C_1$ - $C_5$  alkyl,  $C_6$ - $C_{12}$  aryl,  $C_1$ - $C_5$  alkoxy,  $C_6$ - $C_{12}$  aryloxy,  $C_1$ - $C_5$  alkylthio,  $C_6$ - $C_{12}$  arylthio, OH, SH or  $N(R)_2$ ;  
 $R_6$  is selected from  $C_1$ - $C_5$  alkyl,  $C_6$ - $C_{12}$  aryl,  $C_1$ - $C_5$  alkylthio,  $C_6$ - $C_{12}$  arylthio,  $-S(O)R_3$ ,  $-S(O)_2R_3$  or  $-C(O)R_5$ ,  
 $R''$  is the same as  $R$  above;  
 $Q$  is selected from halogen and  $-OS(O)_2Q_1$ ; wherein  $Q_1$  is selected from  $C_1$ - $C_4$  alkyl,  $C_1$ - $C_4$  perfluoroalkyl, phenyl, *p*-methylphenyl; and  
 $m$  is 1 to 5.

53. (New) A compound according to claim 45, wherein

$X$  is absent;

$B$  is  $C_2$ - $C_5$  acyl;

$X'$  is  $NR$ ;

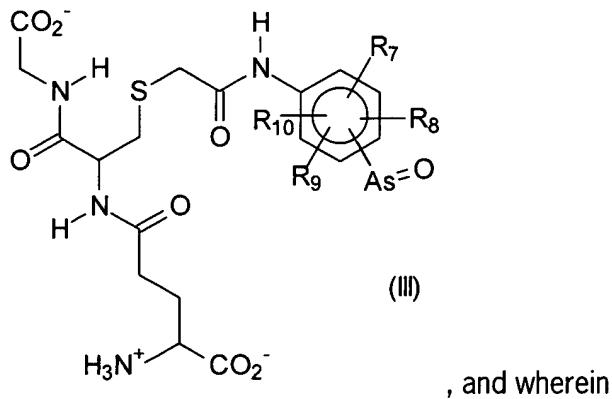
$n$  is 1;

$B'$  is phenylene; and

$R$  is H;

wherein the substituents directly attached to the phenylene ring are in a para-, meta- or ortho-relationship.

54. (New) The compound according to claim 45 represented by Formula III:



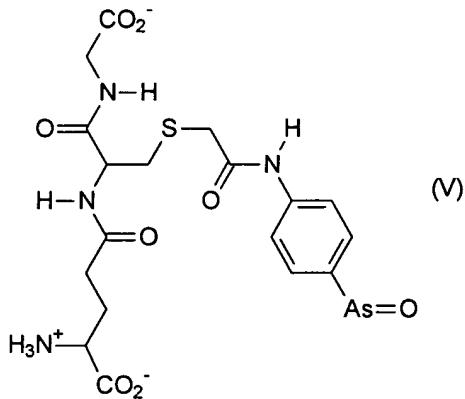
, and wherein

$R_7$  to  $R_{10}$  are independently selected from the group consisting of: hydrogen,  $C_1$ - $C_5$  alkyl,  $C_6$ - $C_{12}$  aryl, halogen, hydroxy, amino, nitro, carboxy,  $C_1$ - $C_5$  alkoxy,  $-OS(O)_2R_3$  or  $-NHC(O)CH_2Q$  wherein Q is halogen,  $-OS(O)_2CH_3$ ,  $-OS(O)_2C_6H_5$  or  $-OS(O)_2$ -*p*-tolyl.

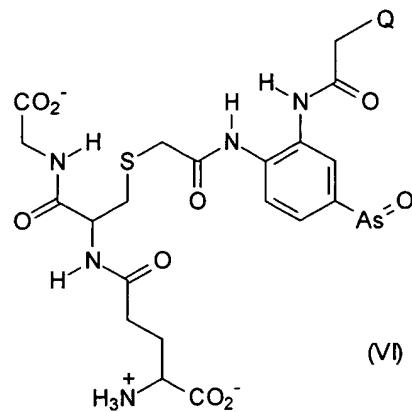
55. (New) The compound according to claim 54, wherein  $R_7$  to  $R_{10}$  are independently selected from hydrogen, halogen, hydroxy, amino, nitro, carboxy,  $C_1$ - $C_5$  alkoxy, methyl, ethyl, isopropyl, tert-butyl, phenyl, and  $-NHC(O)CH_2Q$  wherein Q is halogen,  $-OS(O)_2CH_3$ ,  $-OS(O)_2C_6H_5$ , or  $-OS(O)_2$ -*p*-tolyl.

56. (New) The compound according to claim 54, wherein the arsenoxide ( $-As=O$ ) group is at the 4-position of the phenylene ring.

57. (New) The compound according to claim 45, wherein the compound is 4-(*N*(*S*-glutathionylacetyl)amino)phenylarsenoxide (GSAO) and is represented by Formula V:

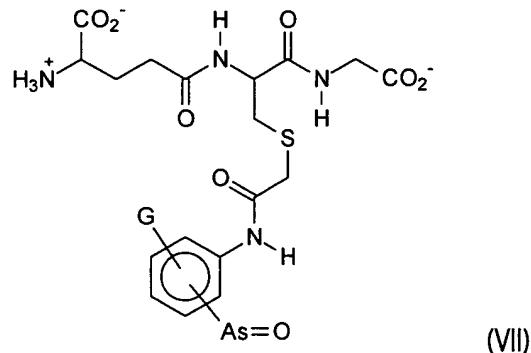


58. (New) The compound according to claim 45, wherein the compound is represented by Formula VI:



wherein Q is any halogen.

59. (New) The compound according to claim 45, wherein the compound is represented by Formula VII:



wherein G is selected from the group consisting of: hydrogen, halogen, hydroxy, amino, nitro, carboxy, C<sub>1</sub>-C<sub>5</sub> alkoxy, C<sub>1</sub>-C<sub>5</sub> alkyl and C<sub>6</sub>-C<sub>12</sub> aryl and -NHC(O)CH<sub>2</sub>Q wherein Q is halogen, -OS(O)<sub>2</sub>CH<sub>3</sub>, -OS(O)<sub>2</sub>C<sub>6</sub>H<sub>5</sub> or -OS(O)<sub>2</sub>-p tolyl.

60. (New) The compound according to claim 59, wherein G is selected from the group consisting of: hydrogen, halogen, hydroxy, amino, nitro, carboxy, C<sub>1</sub>-C<sub>5</sub> alkoxy, methyl, ethyl, iso-propyl, tert-butyl, phenyl, and -NHC(O)CH<sub>2</sub>Q wherein Q is halogen, -OS(O)<sub>2</sub>CH<sub>3</sub>, -OS(O)<sub>2</sub>C<sub>6</sub>H<sub>5</sub> or -OS(O)<sub>2</sub>-p tolyl.

61. (New) The compound according to claim 59, wherein G is selected from the group consisting of hydroxy, fluorine, amino, and nitro.

62. (New) The compound according to claim 45, which is linked to a detector group.
63. (New) The compound of claim 62, wherein said detector group is selected from the group consisting of fluorophore, biotin, a radionucleotide, fluorescein, and a group comprising a transition element.
64. (New) The compound according to claim 62, wherein the detector group is biotin.
65. (New) The compound according to claim 63, wherein the radionucleotide is selected from the group consisting of  $^3\text{H}$ ,  $^{14}\text{C}$ ,  $^{32}\text{P}$ ,  $^{33}\text{P}$ ,  $^{35}\text{S}$ ,  $^{125}\text{I}$ ,  $^{131}\text{I}$ ,  $^{123}\text{I}$ ,  $^{111}\text{In}$ ,  $^{105}\text{Rh}$ ,  $^{153}\text{Sm}$ ,  $^{67}\text{Cu}$ ,  $^{67}\text{Ga}$ ,  $^{166}\text{Ho}$ ,  $^{177}\text{Lu}$ ,  $^{186}\text{Re}$ ,  $^{188}\text{Re}$ , and  $^{99\text{m}}\text{Tc}$ .
66. (New) The compound according to claim 65, wherein the radionucleotide is selected from the group consisting of  $^3\text{H}$  or  $^{14}\text{C}$ .
67. (New) A pharmaceutical composition comprising a compound of claim 45, together with a pharmaceutically acceptable carrier, adjuvant and/or diluent.
68. (New) The compound according to claim 74, wherein G is selected from the group consisting of hydroxy, fluorine, amino, and nitro.